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REC'D 16 JUN 2000

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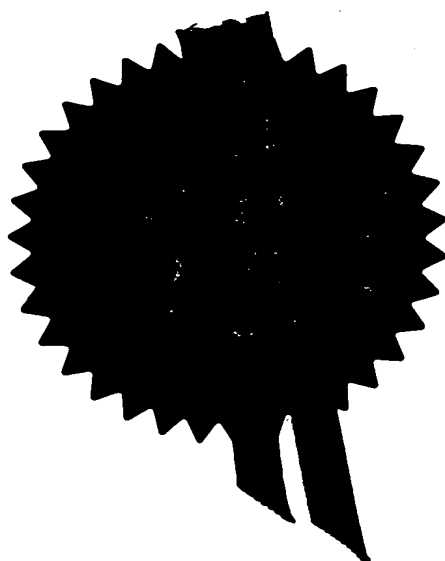
PCT

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Signed

AmBrewer

Dated

9 June 2000

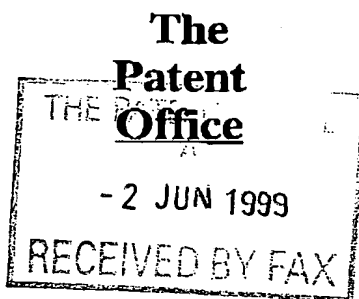


Patents Form 1/77

Patents Act 1977
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1/77

The Patent Office

Cardiff Road
Newport
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1. Your reference

P57736F

- 2 JUN 1999

2. Patent application number

(The Patent Office will fill in this part)

9912763.1

02JUN99 E451417-1 J02813

P01/7700 9.00 - 9912763.1

3. Full name, address and postcode of the or each applicant (underline all surnames)

VAN ASSELT, Jan Abram
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Surrey RH9 8NB

639693/002

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

Ball Game Apparatus

5. Name of your agent (if you have one)

Fry Heath & Spence

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

The Old College
53 High Street
Horley
Surrey RH6 7BN

Patents ADP number (if you know it)

05880273001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day/month/year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day/month/year)

8. Is a statement of inventorship and or right to grant of a patent required in support of this request? (Answer 'Yes' if:

No

a) any applicants named in part 3 is not an inventor, or
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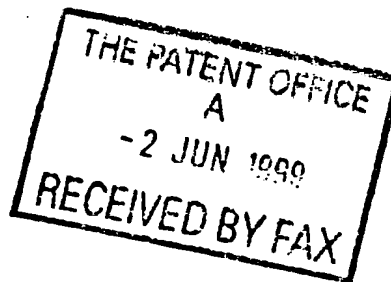
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Description 7 ✓

Claim(s) 0

Abstract 0

Drawings(s) 1 / SM



10. If you are also filing any of the following, state how many against each item.

Priority documents 0

Translations of priority documents 0

Statement of inventorship and right to grant of a patent (Patents Form 7/77) 0

Request for preliminary examination and search (Patents Form 9/77) 0

Request for substantive examination (Patents Form 10/77) 0

Any other documents (please specify) 0

11.

I/We request the grant of a patent on the basis of this application

Fry Heath & Spence

Signature

Date 2nd June 1999

12. Name and daytime telephone number of person to contact in the United Kingdom

Dr. V. Barry

01293 776880

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DUPLICATE

BALL GAME APPARATUS

This invention relates to apparatus for use in practising the sport of golf or cricket and/or any other ball game which involves lofting a ball forwardly into the air. More especially, but not exclusively, the invention relates to apparatus for improving the skills of participants in such sports.

In the field of competitive sport it is a well known adage that practice makes perfect. Thus, for example, golf players spend many hours improving, *inter alia*, their golf swing.

In other ball game sports such as tennis, there are several inanimate trainers available, these including, *inter alia*, a ball attached by an elasticated strand, string or rope to some form of central support. Such trainers are unsatisfactory because the ball approaches the player at an unrealistic angle and speed. Furthermore, *missing* the ball results in the elasticated strand, string or rope becoming inconveniently entangled around the support.

Children also enjoy ball games, but unless they are coached, they have even less opportunity of improving their skills. Furthermore, few children have sufficient space and freedom from houses and cars to play ball games unrestrictedly.

US-A-4,138,107 relates to a ball game practice device which comprises a ball connected to an elastic tether, the tether connected at either end to a carriage member which runs along a rigid rail. It is the elastic nature of the tether which after full stretch, returns the ball to the player.

US-A-3,630,521 relates to a baseball batting practice device. Once

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again, a ball is connected to an elastic cord which is slidably linked to an upper and lower support wire. In both these disclosures, the elastic nature of the tether to the ball allows somewhat uncontrolled lateral movement of the ball once struck by the player.

Thus, there is a need to provide apparatus for simulating a golf or cricket swing or the like, to be used in a controlled manner in relatively small areas without concern over surrounding buildings and cars.

The present invention sets out to provide such apparatus.

Accordingly, in one aspect the invention provides apparatus to practise the technique of lofting a ball, comprising two inclined guideways, substantially inelastic reciprocating means connected to and freely movable along said guideways, and a ball connected to said reciprocating means.

The term "substantially inelastic" as used herein applies to materials which have a very limited ability to stretch and change length when struck.

One end of each of the two guideways is typically secured or securable at substantially ground level, for example, to the ground via a stake or ground pin, or to a stable support. The other end of each of the two guideways is typically attached to a stable support. In particular, the stable support may be a wall or a pole.

The length of the guidelines and/or their angle of inclination above base level may be varied in order to vary the type and/or difficulty of swing or stroke required. For example, if a user would like to simulate a drive swing, the guidelines may be kept long and their angle of inclination low.

Typically, the distance separating the two guideways increases as the height of the guideways increases above ground level. Accordingly, the

guideways may be substantially adjacent at their lowest point level but diverge towards their highest point. The maximum distance separating the two guideways may be greater than the length of the reciprocating means.

Preferably, the supports are linked, for example by a rigid support bar, thereby ensuring that the guidelines are maintained at a predetermined distance apart.

In this arrangement, when the reciprocating means is positioned at, or towards, the lower end of the guideways, a player may strike the ball and propel the reciprocating means forwardly and upwardly along the guideways. However, when the length of the reciprocating means becomes limiting in relation to the distance separating the two guideways, the reciprocating means decelerates, stops and is deflected back along the guideways towards the player.

In an alternative arrangement, the two guideways are substantially parallel.

Importantly, the reciprocating means is made from a substantially inelastic material. Not only does this ensure that the ball maintains a controlled trajectory regardless of the angle at which the player hits the ball, but the inelasticity of the reciprocating means ensures its length becomes limiting in relation to the distance between the two guideways thereby deflecting the ball back to the player.

The reciprocating means may comprise a substantially inelastic substantially horizontal line connected or connectable to both guideways.

The invention also contemplates an embodiment wherein the reciprocating means comprises more than one substantially inelastic substantially horizontal line, for example, wherein the reciprocating means

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comprises one substantially inelastic substantially horizontal line connected to one guideway and another associated substantially inelastic substantially horizontal line connected to the other guideway.

The reciprocating means may be connected or connectable to the guideways through a slide which may comprise a hinged clip, ring, rope slide or adjustable loop.

In one embodiment one or both guideways and/or the reciprocating means are made of a low friction material such as plastics covered cord or wire. The guideways and the reciprocating means may be made of the same material.

The invention also contemplates an embodiment wherein one or both guideways are made of a substantially rigid material. By substantially rigid it is meant relatively inflexible. Therefore, one or both guideways may take the form of a plastics track which is capable of receiving a runner to which the reciprocating means is connected.

The ball may be connected at any point along the reciprocating means.

The ball may be, for example, a cricket ball or a golf ball.

The guidelines may be kept within retaining means when not in use. For example, the retaining means may take the form of a coil or spool around which the guidelines may be wound. The retaining means may comprise an automatic reeling mechanism for the guidelines. In such an embodiment, the user would unwind a length of each guideline, and secure each guideline by one end to a base, e.g. to the ground, to ensure that the automatic reeling mechanism does not rewind the guidelines.

In one embodiment, the supports and/or the guidelines and/or the retaining means may be attached or attachable to each other.

In another aspect, the invention provides apparatus for practising the technique of lofting a ball, comprising a ball suspended by a substantially inelastic substantially horizontal line connected or connectable to two inclined guideways.

In yet another aspect, the invention provides apparatus for practising the technique of lofting a ball, comprising a support frame containing two substantially vertical supports and a substantially rigid substantially horizontal cross-bar linking each support, two inclined guideways, one end of each guideway linked to a support, substantially inelastic reciprocating means connected to and freely movable along said guideways, and a ball connected to said reciprocating means.

In still another aspect, the invention provides apparatus for practising the technique of lofting a ball, comprising a support frame containing two substantially vertical supports and a substantially rigid substantially horizontal cross-bar linking the supports, two guideways, one end of each guideway linked to a support, each guideway retained or retainable in retaining means, substantially inelastic reciprocating means connected or connectable to and freely movable along said guideways, and a ball connected to said reciprocating means.

The retaining means may comprise an automatic reeling mechanism for the guidelines.

The height and positioning of the lower ends of the guidelines may be adjustable.

The guideways lie in a plane which is generally inclined thereto. One

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or each guideway may take the form of a string, rope or the like stretchable between two spaced supports. The line may be coated with or formed from a material having relatively low friction properties, for example a plastics material.

The substantially inelastic substantially horizontal line(s) may be connected to one and/or both guideways by a slide in the form of, for example, a loop or ring.

The apparatus may also comprise a backboard or target at which the user of the apparatus may aim when hitting the ball. The target may be placed at any position upstream of the lower end of the guidelines.

The apparatus may also comprise buffering and/or deflecting means at any position along the guidelines to return the reciprocating means back to the user after the ball is struck. The backboard or target may also act as a buffering and/or deflecting means.

The invention will now be described by way of example only with reference to the following diagrammatic drawing, Figure 1, which represents a side view in perspective of apparatus in accordance with the invention.

The apparatus shown in Figure 1 takes the form of a golf training aid, especially for one player. The apparatus comprises two guideways 4, of plastics coated cord which are attached at their ends to supports 6 and 8, spaced approximately 10-12 metres apart. Typically, the heights of the supports 6 above ground level are two metres. The supports 6 are held in position by metal supports 6a. A rigid support pole 6b maintains the tops of the supports 6 at a predetermined distance apart. The guideways are fixed at ground level by ground pegs 8. A ball 10 is suspended by an inelastic line 12 to the guideways. The line 12 is linked to the guideways by a loop or ring 12a. The line 12 may be secured to the ball by stitching,

stapling or any other means. In an alternative arrangement, two inelastic lines are used, one linking one side of the ball to one guideway, the other linking the other side of the ball to the other guideway.

When the training aid is in use, a player stands near the lowermost end of the guideways at their point of connection to support 8 and strikes the ball with a golf club. The starting positions of the ball and line 12 are shown in Figure 1. The force of the strike sends the line 12 and the ball 10 along the guideways 4 towards the limiting position shown in broken line. Once the distance between the ends of the line 12 becomes limiting in relation to the distance between the guideways, the line 12 slows down, stops and is deflected back along the guideways to return to the player who can then strike the ball again.

Winding and retaining means 14 may be included on either or both guideways to store the guidelines 4 when not in use.

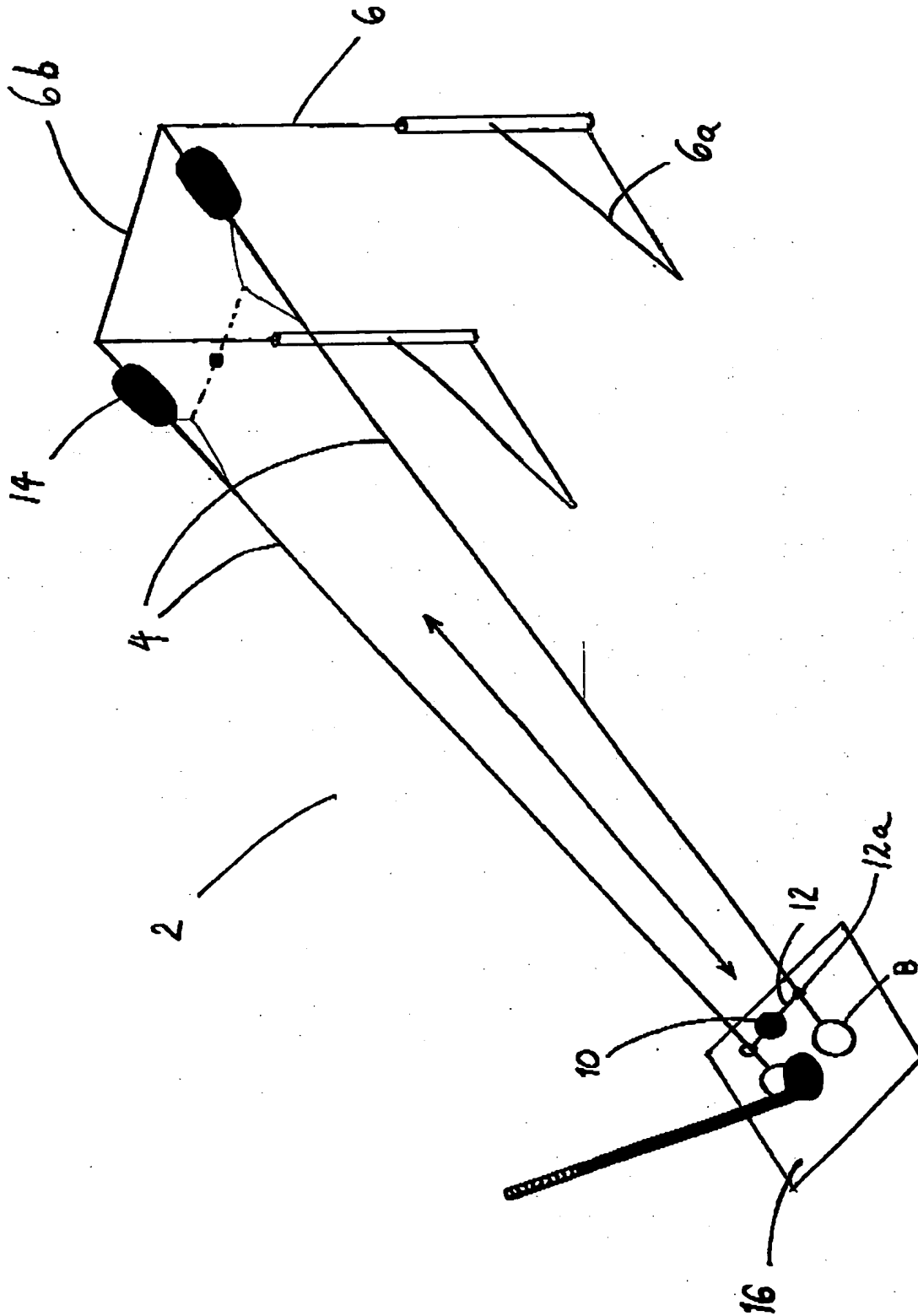
Whilst the apparatus is in use, the player may stand on a teeing-off mat 16 which may be made of any suitable material. Hence, the apparatus may be used on any surface, for example, grass, sand or concrete, and the user can still simulate conditions of play.

It will be appreciated that the foregoing is merely exemplary of embodiments of the invention and that modifications can readily be made without departing from the scope of the invention.



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FIGURE 1



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